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1 May 1992

Ms. Christine Purcell
Case Manager
New Jersey Department of Environmental Protection and Energy
Bureau of Federal Case Management
Division of Responsible Party Remediation
CN 028
Trenton, NJ 08625-0028

RE: L.E. Carpenter Site Baseline Risk Assessment; Response to letter dated 18 March 1992

Dear Ms. Purcell,

On behalf of our client, L.E.Carpenter, Roy F.Weston (WESTON) would like to respond to your letter dated 18 March 1992 regarding the Baseline Risk Assessment (RA) for the L.E. Carpenter Site in Wharton, NJ. These comments are intended to address your comments and complete the administrative record relative to the RA. The following responses are provided to you in the order which you presented them in the March 18 letter.

I. Section 2, Tables 2-1 through 2-6:

The upper 95 percent confidence limit in the human health evaluation (Sections 1-5) was based on the geometric mean. For the ecological assessment, the arithmetic mean was used. Note that no upper 95% confidence limits were used in the comparisons that were made for the ecological portion (only averages and maximums were evaluated). This approach was consistent with the agreement reached as the result of the NJDEPE/WESTON meeting held in Trenton, NJ on December 4, 1991, and detailed in subsequent correspondence from Martin O'Neill to NJDEPE.

The formula used to derive the upper 95% confidence limit ($UL_{1-\alpha}$) of the geometric mean (Tables 2-1 through 2-6) was as follows:

$$UL_{1-\alpha} = \exp [y + 0.5\, S^2y + (S_yH_{1-\alpha}/ (n-1)^{1/2})]$$

(Ref: Gilbert, R.O., 1987. Statistical Methods for Environmental Pollution Monitoring, "Characterizing Lognormal Populations" (Chapter 13), p. 170, Van Nostrand Reinhold Company, NY)

II. Section 5.3.2.2 Non-Carcinogenic Risk:

WESTON does not understand the context of the comment pertaining to the "inappropriate use"

of the hazard index in Section 5.3.2.2. All values by chemical and pathway that exceeded unity were clearly presented. WESTON could not find any statement in that section that discussed adverse health effects only occurring in the hazard index range of 10 to 100. Perhaps this comment pertains to earlier drafts of the document submitted in 1991.

III. Section 5.4.2.3 Possible Non-site Related Contamination, pg 5-24.

L.E. Carpenter is aware of the Departments position regarding the volatile organic compounds found in the groundwater wells located on Air Products. The most recent groundwater flow data clearly demonstrates that shallow groundwater is flowing from the Air Products property towards the drainage ditch. In addition, the link between the L.E. Carpenter site and the chlorinated compounds has not been confirmed based upon their lack of detection in on-site wells sampled during the RI, and their confirmed presence on the Air Products wells only. Nevertheless, the chlorinated compounds were utilized in the calculations of potential risks presented in the RA. Weston feels that it is appropriate to present a discussion of potential overestimation of risks based upon the possibility that the chlorinated compounds detected in off-site well may not be the result of contamination originating from L.E. Carpenter.

IV. Section 5.4.3.2 Qualitative Assessment of Risks from Exposure to Lead:

The statement concerning "sediment" concentrations of lead was corrected to read "soils". Table 2-4 has been revised to reflect the soil concentrations of lead and is included in this letter as an insert of February 1992 risk assessment. The units for lead in deep groundwater were corrected to read "4.8 ug/ml" on p. 5-34. This page has also been included for insertion into the January 1992 document.

As discussed during the meeting on 4 December 1992, L.E. Carpenter recognizes that there are specific areas on-site with elevated levels of lead. Those specific locations will be identified in the FS and a remediation strategy will be proposed. Furthermore, as discussed, the remediation goal for lead will be based upon the NJDEPE clean-up guidelines.

V. Section 5.4.3.3 Land Usage:

During the review of the May 1991 RA the Department challenged the references to the future land usage and intended deed restriction. In response to all of the comments received regarding the May RA, WESTON organized a conference call with the Department and USEPA on August 5, 1991. The details of the conference call and resolution of the comments were documented in a letter from Martin O'Neill to Edgar Kaup, former NJDEPE Case Manager. During that

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conference call, WESTON and DEPE agreed that references to deed restrictions and future use of the site could remain in the "Uncertainty Analysis" section of the report (see Specific Comment #2 of August 19,1991 letter). Consistent with USEPA guidance regarding baseline risk assessments, it is important to consider the realistic future use scenario's in any calculation of site risks. If a deed restriction is placed of the property, it is not realistic to evaluate the residential use scenario and calculate overall site risks based upon consumption of on-site groundwater, and contact with residential receptors.

VI. Section 6.7.3 Conclusions:

L.E. Carpenter has solicited bids from qualified consultants to prepare a work plan as requested by the Department. It is expected that the Draft Work Plan will be available for the Departments review on 15 June 1992. I will call you next week to set up a meeting to discuss the schedule and proposed scope of work for the sediment toxicity study.

Very truly yours,

ROY F. WESTON, INC.

Martin J. O'Neill, C.H.M.M.
Project Manager

cc: C. Anderson, L.E Carpenter
R. Hahn, L.E. Carpenter

Hematological effects have also been observed in children and adults with sustained levels as low as 10 μg/dL of blood (inhibition of delta-aminolevulinic acid dehydratase) and anemia may occur at 40 μg per deciliter in both children and adults. The anemia from lead poisoning is caused by shortened erythrocyte life span and impairment of heme synthesis.

Chronic irreversible renal effects (chronic nephropathy) have been observed in adult workers after years of exposure at levels that produce blood lead levels around 60 μg/dL. The nephropathy includes vascular sclerosis, glomerular sclerosis, tubular cell atrophy, and interstitial fibrosis. Acute reversible nephropathy usually occurs in children acutely exposed to lead that produce blood levels of 80 to 100 μg/dL.

Studies are available to suggest that increased blood pressure occurs in adult males when exposures result in blood lead levels as low as 30 μg/dL. Severe lead toxicity has been associated with sterility, abortion, and neonatal mortality and morbidity. Studies have demonstrated chromosomal defects in workers with blood lead levels above 60 μg/dL. Toxic effects on human sperm and eggs have also been observed. Other studies suggest that lead affects the humoral immune system.

Lead was found in the deep groundwater at a geometric mean concentration of 2.5 μg/L and a maximum concentration of 4.8 μg/L. The current U.S. EPA cleanup level for lead in groundwater is 15 μg/L (EPA, 1990c). It would therefore appear that mean lead concentrations in the groundwater are not a concern and groundwater remediation is unnecessary at the present time.

Soil lead was found at a geometric mean concentration of 55 mg/kg, a maximum concentration of 6,500 mg/kg, and an upper 95% confidence limit concentration of 444 mg/kg (Table 2-4). The current U.S. EPA cleanup level for lead in the soil is 500 to 1000 mg/kg (EPA, 1989c). The maximum concentration is high because the site contains hot spots around the loading dock area (TP9A - 6530 ppm; HA4 - 2300 ppm; HA2 - 693 ppm). It is unrealistic to assume that a child or adult would be exposed chronically to these

Table 2-4
(Continued)

Substance	Frequency of Detection* (# detected/# sampled)	Concentration Range (mg/kg)	Geometric Mean Concentration (mg/kg)	Upper 95% Confidence Limit (mg/kg)
Inorganics				
Antimony	26/50	<2.E-01 - 8.3E+02	1.08E+01	1.39E+02
Cadmium	21/50	<3.0E-01 - 9.9E+01	1.04E+00	5.02E+00
Chromium	50/50	6.1E+00 - 4.9E+02	1.8E+01 (as Cr III) 2.6E+00 (as Cr VI)	3.3E+01 (as Cr III) 4.7E+00 (as Cr VI)
Copper	50/50	<8.5E+00- 2.4E+02	4.7E+01	8.9E+01
Lead	50/50	2.60E+00- 6.53E+03	5.47E+01	4.44E+02
Mercury	32/50	<5.0E-02 - 3.8E+01	2.82E-01	2.64E+00
Nickel	50/50	4.1E+00 - 8.9E+01	1.3E+01	2.1E+01
Silver	39/50	<4.3E-01 - 2.2E+00	5.95E-01	7.25E-01
Thallium	8/50	<1.1E-01 - 5.7E-01	2.00E-01	2.48E-01
Cyanide	3/10	2.85E-01 - 1.4E+00	1.0E+00	1.4E+00

*Includes both hits and J values.

Key: 4.5E-02 mg/kg is an exponential expression of 0.045 mg/kg.